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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/601,078	07/20/2000	Masafumi Koide	Q60201	5578

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EXAMINER

MAKI, STEVEN D

ART UNIT	PAPER NUMBER
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1733

DATE MAILED: 03/29/2002

5

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/601,078

Applicant(s)

KOIDE, MASAFUMI

Examiner

Steven D. Maki

Art Unit

1733

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3. 6) ☐ Other: _____

Art Unit: 1733

- 1) The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

- 2) Claims 2-6 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

As to claims 2-6, it is unclear these claims require the sipe to be twisted. Does claim 2 read on a linear non-twisted sipe extending at 90 degrees to the surface portion since such a linear non-twisted sipe extending at 90 degrees would define protruding portions with respect to a twisted virtual plane? If not, why not? Since claim 2 appears to be directed to the figure 5 embodiment, the following changes are suggested:

(a) in claim 2 last two lines, change "the virtual plane being twisted" to --the virtual plane and thereby said sipe being twisted--, (b) in claim 5, change "said virtual plane is shaped so as to be twisted" to --said virtual plane and thereby said sipe is shaped so as to be twisted—and (c) in claim 6, change "said virtual plane is shaped so as to be twisted" to --said virtual plane and thereby said sipe is shaped so as to be twisted--.

- 3) The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

- 4) **Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Japan '510 (JP 9-323510) in view of Rubber Technology and Manufacture by Blow.**

Art Unit: 1733

Japan '510 discloses a pneumatic tire having a size such as 11R22.5 (col. 3) and a tread comprising blocks 4 defined by circumferential main grooves 2 and transverse grooves (lug grooves 3). Each block has a twisted sipe 5. See abstract and figure 1, figure 2a and figure 2b. Japan '510 does not specifically recite a plurality of reinforcing layers in each of which cords, which are inclined at a predetermined angle with respect to a tire circumferential direction, are provided parallel to each other. However, it would have been obvious to one of ordinary skill in the art to provide the pneumatic radial tire of Japan '510 with a plurality of reinforcing layers in each of which cords, which are inclined at a predetermined angle with respect to a tire circumferential direction, are provided parallel to each other so that Japan '510's tire can function as a radial tire as intended since Blow shows conventional / well known radial tire construction as comprising a belt (tread bracing layers) comprising four cord plies laminated together wherein two of the plies have cords angled in the same direction (see figure 10.3 and page 351).

The limitation of the sipe being twisted around a first axis and a second axis so as to satisfy $P1 = 20-80\% W$ and $P2 = 20-60\%F$ would have been obvious since Japan '510 teaches twisting the sipe about a "middle central region" of the block such that the length on the block surface is made nearly equal to the length of the sipe at the sipe bottom.

Claim 1 fails to contain any requirement that a clockwise SAT generated due to the cords provided parallel to each other in the outermost reinforcing layer be

Art Unit: 1733

suppressed (reduced) by a counterclockwise SAT generated by the block having the sipe.

5) Claims 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Japan '510 (JP 9-323510) in view of Rubber Technology and Manufacture by Blow as applied above and further in view of Moseley et al (US 5,669,993).

As to claims 8-10, it would have been obvious to twist the blocks of Japan '510 as claimed since Moseley et al suggests twisting a block which is illustrated as having sipes so that when compressed the block generates a torque which counters a residual self aligning torque (RSAT) of the tire.

6) Claims 2-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Japan '510 (JP 9-323510) in view of Rubber Technology and Manufacture by Blow as applied above and further in view of PCT (WO 96/01190) and Lagnier (US 5,783,002).

As to claims 2-6, it would have been obvious to provide Japan '510's sipe so as to be wave shaped along its length when viewing a surface parallel to the block surface and wave shaped along its depth when viewing a cross section of the block to improve adhesion of the tire to the road since PCT (figure 2) and Lagnier (figure 1) suggest configuring sipes such that they are wavy along the length of the sipe (incision) and along the depth of the sipe (incision) to improve adhesion of the tire to the road. PCT additionally teaches "twisting" a virtual central plane of the sipe (incision) so as to define an angle beta at the sipe bottom. PCT therefore suggests that using a wavy shape is

Art Unit: 1733

applicable to using a twisted sipe. Lagnier teaches that the sipe (incision) having the described wavy shape improves adherence and also improves irregular wear.

7) Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over PCT (WO 96/01190) in view of Rubber and Technology and Manufacture by Blow and either Japan '910 (JP 2-299910) or Japan '805 (JP 62-286805).

PCT discloses a pneumatic tire having a size such as 185/65R15X and a tread comprising elements in relief (blocks) 1 bordered by circumferential grooves 2 and quasi transverse grooves 3. The block has an incision (sipe) 10, which is elliptical. See figure 4 and page 6 lines first full paragraph especially lines 8-10. As indicated in figure 4, the sipe is twisted so that the top of the sipe defines a different angle α than the bottom of the sipe. Hence, PCT discloses a closed twisted sipe as claimed.

PCT does not specifically recite a plurality of reinforcing layers in each of which cords, which are inclined at a predetermined angle with respect to a tire circumferential direction, are provided parallel to each other. However, it would have been obvious to one of ordinary skill in the art to provide the pneumatic radial tire of PCT with a plurality of reinforcing layers in each of which cords, which are inclined at a predetermined angle with respect to a tire circumferential direction, are provided parallel to each other so that PCT's tire can function as a radial tire as intended since Blow shows conventional / well known radial tire construction as comprising a belt (tread bracing layers) comprising four cord plies laminated together wherein two of the plies have cords angled in the same direction (see figure 10.3 and page 351).

Art Unit: 1733

The limitation of the sipe being neither connected with a main groove nor lug groove would have been obvious in view of (a) PCT's teaching to use a closed sipe and (b) Japan '910 (JP 2-299910) or Japan '805 (JP 62-286805) which shows not connecting a closed sipe to a groove to improve resistance to wear.

Remarks

8) The remaining references are cited of interest.

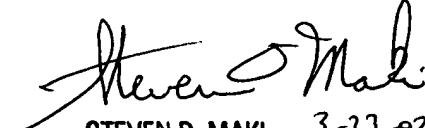
9) No claim is allowed.

10) Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven D. Maki whose telephone number is 703-308-2068. The examiner can normally be reached on Mon. - Fri. 7:30 AM - 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Ball can be reached on (703) 308-2058. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-7718 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

Steven D. Maki
March 23, 2002


STEVEN D. MAKI 3-27-02
PRIMARY EXAMINER
GROUP 1300
AU 1733